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[Proposed Rules]
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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 16

RIN 1018-AT29

Injurious Wildlife Species; Silver Carp (*Hypophthalmichthys molitrix*) and Largescale Silver Carp (*Hypophthalmichthys harmandi*)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule; notice of availability of environmental documents.

SUMMARY: The U.S. Fish and Wildlife Service proposes to add all forms (diploid and triploid) of live silver carp (*Hypophthalmichthys molitrix*), gametes, eggs, and hybrids; and all forms (diploid and triploid) of live largescale silver carp (*Hypophthalmichthys harmandi*), gametes, eggs, and hybrids to the list of injurious fish, mollusks, and crustaceans under the Lacey Act. This listing would have the effect of prohibiting the importation and interstate transportation of any live animal, gamete, viable egg, or hybrid of the silver carp and largescale silver carp, without a permit in limited circumstances. The best available information indicates that this action is necessary to protect the interests of human beings, and wildlife and wildlife resources, from the purposeful or accidental introduction and subsequent establishment of silver carp and largescale silver carp populations in ecosystems of the United States.

DATES: Comments must be submitted on or before November 6, 2006.

ADDRESSES: You may submit comments, identified by RIN number 1018-AT29, by any of the following methods:

E-mail: silvercarp@fws.gov. Include "RIN number 1018-AT29" in the subject line of the message. See the Public Comments Solicited section below for file format and other information about electronic filing.

Fax: (703) 358-1800.

Mail/Hand Delivery/Courier: Chief, Branch of Invasive

Species, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive,
Suite 322, Arlington, VA 22203.

Federal eRulemaking Portal: <http://www.regulations.gov>.

Follow the instructions for submitting comments.

Instructions: All submissions received must include the agency name and Regulatory Information Number (RIN) for this rulemaking. For detailed instructions on submitting comments and additional information on the rulemaking process, see the "Public Participation" heading of the SUPPLEMENTARY INFORMATION section of this document.

FOR FURTHER INFORMATION CONTACT: Erin Williams, Branch of Invasive Species, at erin_williams@fws.gov, or (703) 358-2034.

SUPPLEMENTARY INFORMATION:

Background

In October 2002, the U.S. Fish and Wildlife Service (Service) received a petition signed by 25 members of Congress representing the Great Lakes region to add bighead, silver, and black carp to the list of injurious wildlife under the Lacey Act (18 U.S.C. 42). A follow-up letter to the original petition had seven additional Legislator signatures that support the petition. The Service published a Federal Register notice of inquiry on silver carp (68 FR 43482-43483, July 23, 2003) and provided a 60-day public comment period. We received 31 comments in total, but 12 of these did not address the issues raised in the notice of inquiry. We considered the information provided in the 19 relevant comments. Most of the comments supported the addition of silver carp to the list of injurious wildlife. One commenter noted that silver carp have no commercial value, but was concerned that listing would hinder control and management. One commenter asked us to delay listing until a risk assessment could be completed. Biological synopses and risk assessments were compiled for silver and largescale silver carp.

Under the terms of the injurious wildlife provisions of the Lacey Act, the Secretary of the Interior is authorized to prohibit the importation and interstate transportation of species designated by the Secretary as injurious. Injurious wildlife are defined as those species and offspring and eggs that are injurious to wildlife and wildlife resources, to human beings, and to the interests of forestry, horticulture, or agriculture of the United States. Wild mammals, wild birds, fish, mollusks, crustaceans, amphibians, and reptiles are the only organisms that can be added to the injurious wildlife list.

Species listed as injurious (including their gametes or eggs) may not be imported into the United States or transported between States, the District of Columbia, the Commonwealth of Puerto Rico, or any territory or possession of the United States by any means without a permit issued by the Service. Permits may be granted for the importation or transportation of injurious wildlife and their offspring or eggs for bona fide scientific, medical, educational, or zoological purposes. A listing would not prohibit intrastate transport or possession of species within States, where not prohibited by the State. Any regulation pertaining to the use of species within States would continue to be the responsibility of each State.

Public Participation

Our practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours. Individual respondents may request that we withhold their home address from the rulemaking record, which we will honor to the extent allowable by law. In some circumstances, we would withhold from the rulemaking record a respondent's identity, as allowable by law. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment. However, we will not consider anonymous comments. We will make all submissions from organizations or businesses and from individuals identifying themselves as representatives or officials of organizations or businesses available for public inspection in their entirety.

This proposed rule solicits economic, biological, or other information on adding all forms of live silver and largescale silver carp, and hybrids, to the list of injurious wildlife. The data will be used to determine if these species are a threat, or potential threat, to those interests of the United States delineated above, and thus warrant addition to the list of injurious fish in 50 CFR 16.13.

We are soliciting public comments and supporting data, to gain additional information, on this proposed rule to add all forms of live silver and largescale silver carp, gametes, eggs, and hybrids, to the list of injurious wildlife under the Lacey Act. We specifically seek comment on the following questions:

- (1) What regulations does your State have pertaining to the use, transport, and/or production of silver or largescale silver carp?
- (2) How many silver carp are currently in culture or used to control algae in ponds, in how many and which States? Please provide the number of silver carp, if any, permitted within each State.
- (3) What would it cost to eradicate silver carp or largescale silver carp individuals and/or populations, or similar nonnative populations, if found?
- (4) What are the costs of implementing propagation, recovery, and restoration programs for native fish or other native species? What State-listed species would be impacted by the introduction of silver or largescale silver carp?
- (5) What is the economic value of commercial fisheries that have been or could be impacted by silver or largescale silver carp?
- (6) How many fishermen sell live silver carp?
- (7) What are the annual sales and landings for live and/or dead silver carp? What is the magnitude of the commercial market for live silver carp, if any?
- (8) What is the consumer surplus generated from fishing for native fish or fishing-related expenditures such as food, lodging, and equipment? What is the ex-vessel revenue from fishing for native fish that are more valuable than silver carp?
- (9) What is the economic value of baitfish industries in each State? How would the presence of wild silver carp affect baitfish imports or exports within a State?

Description of the Proposed Rule

The regulations contained in 50 CFR part 16 implement the Lacey Act as amended. Under the terms of that law, the Secretary of the Interior

is authorized to prohibit by regulation certain activities involving wild mammals, wild birds, fish, mollusks, crustaceans, amphibians, reptiles, and the offspring or eggs of any of the foregoing that are injurious to human beings, to the interests of agriculture, horticulture, or forestry, or to the wildlife or wildlife resources of the United States. The lists of injurious wildlife species are at 50 CFR 16.11 to 16.15. By adding all forms of live silver carp and largescale silver carp, gametes, eggs and hybrids to the list of injurious wildlife, their importation into the United States, and transportation between States, the District of Columbia, the Commonwealth of Puerto Rico, or any territory or possession of the United States by any means whatsoever would be prohibited, except by permit for zoological, educational, medical, or scientific purposes (in accordance with permit regulations at 50 CFR 16.22), or by Federal agencies without a permit solely for their own use. Federal agencies who wish to import silver or largescale silver carp for their own use must file a written declaration with the District Director of Customs and the U.S. Fish and Wildlife Service Inspector at the port of entry. No live silver carp or largescale silver carp, progeny thereof, viable eggs or hybrids imported or transported under a permit could be sold, donated, traded, loaned, or transferred to any other person or institution unless such person or institution has a permit issued by the U.S. Fish and Wildlife Service. The interstate transportation of all forms of live silver carp or largescale silver carp, gametes, viable eggs or hybrids currently held in the United States for any purpose would be prohibited without a permit.

This action is being considered in order to protect the welfare and survival of native wildlife and wildlife resources and the health and welfare of human beings from the potential negative impacts of silver carp and largescale silver carp by adding them to the list of injurious wildlife and preventing their importation and interstate movement.

Each State can regulate the transportation and possession of silver carp and largescale silver carp within its State boundaries, but States are not able to prohibit the importation into the United States or the interstate transportation of these species. If one State allows the use of either species, and if either species is introduced to natural waters that are connected to other States' waterbodies, the silver or largescale silver carp could be introduced to a State that prohibits their use or possession, potentially impacting that State's natural resources. Many States are asking the Federal Government to prohibit the importation and interstate transportation of silver carp and have submitted letters of support for the addition of silver carp to the list of injurious wildlife. They are concerned that interstate transportation, through trucking accidents or exchange of hauling water, could result in the introduction of silver carp into State waters where they do not exist and are prohibited by State law. In addition, they are concerned that if their importation into the United States is still allowed, silver carp could become established in new waterways where they do not currently exist through human movement. The evaluation of injuriousness follows the biology and natural history summary sections for each species.

Silver Carp

Biology and Natural History

The commonly named silver carp belongs to the family Cyprinidae, with the species name of *Hypophthalmichthys molitrix*. The silver carp is a deep-bodied fish with scale counts typically ranging from 85 to 108. Adult coloration is typically gray-

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black along its top with upper sides olive-green that grade to silver along its side and stomach. Fins are dark and without true spines. Large adults can reach over 1.2 meters (m) in length and 50 kilograms (kg) in weight. The gill rakers of silver carp are unique and form a highly specialized filtering apparatus.

The silver carp is a freshwater species that can live in slightly brackish waters. Silver carp occur naturally in a variety of freshwater habitats including large rivers and warm water ponds, lakes, and backwaters that receive flooding or are otherwise connected to large rivers. They also have been introduced to ponds, lakes, reservoirs, and canals where they grow well, but may not spawn and recruit without access to an appropriate riverine habitat. Silver carp usually occupy the upper and middle layers of the water column and are quite tolerant of broad water temperatures: from 4 [deg]C to 40 [deg]C.

Silver carp can be distinguished from all native North American cyprinids, except the golden shiner, by the presence of a well-developed ventral keel. It can be distinguished from the golden shiner in having very small scales (lateral line scales 85-108) compared to the golden shiner (39-51). Silver carp have only four pharyngeal teeth per side in a single row while the golden shiner has five on each side in a single row.

Small silver carp may resemble shad (*Dorosoma* species). Of the nine established nonindigenous cyprinids in the United States, the silver carp is most similar to bighead carp. The silver carp is also very similar to largescale silver carp, a species which is not known to be in the United States.

Though they are considered a deep water, schooling species, in the Missouri River these fish generally stay between 1 and 5 m deep and are rarely observed on the surface until disturbed. Once disturbed, silver carp often swim rapidly near the surface creating a characteristic large wake and regularly jump out of the water, particularly in response to outboard motors.

Hybrids

Hybridization between closely related species of cyprinids (e.g., species of the genus *Hypophthalmichthys*) is not unusual. Silver carp are known to hybridize and to produce viable offspring with both bighead (*Hypophthalmichthys nobilis*) and largescale silver carps. Hybrids of silver and bighead carps are often used in aquaculture in other countries. Both crosses (bighead carp x silver carp and the reciprocal cross) are fertile. Hybrids of bighead and silver carps often strongly resemble one or the other of the parent species.

Bighead carp x silver carp are common in parts of the United States and are likely to be the result of wild spawning, not escapement of artificially induced hybrids because neither silver carp nor the hybrids are known to be in use in aquaculture in the United States. Five percent of the adult *Hypophthalmichthys* caught in the lower Missouri River in 2004 were hybrids. Hybridization between closely

related cyprinid fishes occurs most commonly where a species has been introduced; hybridization between cyprinids typically occurs when members of related species share similar spawning habitat, behavior, and season because of the loss of environmental cues that inhibit hybridization behavior. The presence of large numbers of wild-spawned hybrids implies that bighead and silver carps often spawn in the same place at the same time in United States waters. Although there has been moderate success in artificially producing hybrids of *Hypophthalmichthys* spp. and common carp (*Cyprinus carpio*), the spawning locations and behaviors of the two genera are so different that production of wild hybrids would be unlikely.

Habitat Use

Silver carp in the Missouri River occupy primarily low-velocity water 1 to 5 m deep in all months of the year and use low-velocity sections of Missouri River tributaries. Adult silver carp aggregate in pool habitats to overwinter. Preliminary research indicates that silver carp in the Missouri River are active in winter, with activity slowing at less than 4 [deg]C and little movement occurring at temperatures below 2 [deg]C. Silver carp used tributaries to larger rivers in the summer.

Large lakes connected to rivers often serve as nursery areas for silver carp. Juvenile silver carp typically remain in backwater habitats whereas adults are typically found in main channels of rivers. There is limited data about the habitat use of juvenile silver carp in the United States because their introduction, spread and establishment is relatively recent and ongoing. Young-of-year silver carp were found in abundance in the backwaters of the middle Mississippi River, and juvenile silver carp were collected in low-velocity and off-channel habitats in the Missouri, Mississippi, Wabash, and lower Ohio rivers. Young-of-year (< 100 millimeters (mm)) and juvenile (100-500 mm) silver carp collected for the Long Term Resource Monitoring Program (LTRMP), of the U.S. Army Corps of Engineers, were found in similar proportions between main channel borders, side channel borders, and contiguous backwaters.

Reproduction and Growth

The reproductive potential of silver carp is high and increases with body size. Estimates range from 145,000-5,400,000 eggs for fish 3.18-12.1 kg. Eggs must be incubated in waters with fairly high ionic concentrations. Silver carp mature anywhere from 3-8 years, and males usually mature one year earlier than females. Silver carp use discrete spawning sites repeatedly. Silver carp usually spawn in the spring and early summer after a rise in water levels with water temperatures ranging from 18-26 [deg]C, though larva has been collected from the lower Missouri River in late August to mid-September. Eggs are semi-buoyant, so spawning typically occurs in water of sufficient flow to keep the eggs from sinking to the bottom and dying. The same female may spawn twice during one growing season. There are indications of a prolonged spawning period, into late summer or early fall, in the United States.

Silver carp can grow quickly: 20 to 30 kg in 5 to 8 years, and survival of silver carp in some culture ponds was 91%. Water temperatures for maximum growth of silver carp are between 24-34

[deg]C. Silver carp are difficult to age, but have been reported to live 15-20+ years.

Diet and Feeding Habits

Silver carp are primarily phytoplanktivores, but are highly opportunistic, eating phytoplankton, zooplankton, bacteria and detritus. Silver carp will also bite on bread paste and dough balls used as bait. Silver carp can effectively filter and consume smaller particles than bighead carp. Their food consumption rate is high, but widely variable. Fry at the smallest size class consumed up to 140% of their body weight daily; 63 mg fingerlings consumed just more than 30% and 70-166 mg fingerlings consumed 63% of their body weight. Adult silver carp have been shown to consume 8.8 kg of food per year, with 90% of the consumption occurring during the three warmest months of the year. In the Missouri River, silver carp sometimes had full guts at temperatures lower than 4 [deg]C. Studies consistently show that filter feeding by silver carp shifts the species composition of the phytoplankton community to smaller species. Silver carp consume zooplankton, especially when phytoplankton abundance is low. Studies also consistently show that the

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presence of silver carp results in a zooplankton community dominated by smaller individuals.

History of Introduction

There are conflicting reports about the first importation of silver carp into the United States. One report said that silver carp were introduced in 1971 from Taiwan for algae control in sewage lagoons. Another report stated that silver carp were introduced in 1972 under an agreement of maintenance with the Arkansas Game and Fish Commission. A third citation said silver carp were introduced into Arkansas in 1973 as a potential addition to fish production ponds. Regardless of the specific date, the major pathway for introduction of silver carp in the United States was importation for biological control of plankton in sewage lagoons and culture ponds. The pathway that led to presence of this species in open waters probably was escape from facilities. There is little, if any, current use of silver carp for algae control.

Soon after importation, silver carp were used in research projects and stocked into wastewater treatment lagoons and impoundments in several States. In 1974 or 1975, silver carp were collected from Bayou Meto and the White River, Arkansas County, Arkansas. In January 1980, several silver carp were collected from Crooked Creek, northeastern Arkansas County, which flowed through two private fish hatcheries possessing silver carp. By 1981, silver carp had been collected from the White, Arkansas, and Mississippi rivers in Arkansas. From there, they continued to spread through the Mississippi River Basin. Silver carp have been collected from the natural waters of 16 States and Puerto Rico. Silver carp are well established throughout much of the Mississippi River Basin, and its range appears to be expanding in that basin.

Pathways of Introduction

There are several potential pathways for further introductions of silver carp into additional water bodies that may spread existing populations of silver carp in the United States. One pathway is through the release of baitfishes contaminated with silver carp. Other potential pathways that would likely spread silver carp to new waterbodies in the United States include intentional release, ballast water release, spread by commercial fishing activities, and release or escape from livehaulers that support commercial fishing or release associated with the sale of the species in live food fish markets, regardless of whether the fish were cultured in fish farms or were caught live in the wild. Silver carp may be introduced and become established in new waterways beyond their current ranges through human use and movement.

Uses

Worldwide more silver carp are produced than any other species of freshwater fish; they are raised for food or stocked for fishing. Silver carp are not presently being cultured commercially for food in the United States and have been minimally cultured in the last 20 years. The ability of silver carp to effectively filter particles and reliance on phytoplankton for much of its diet has led to the use of silver carp as a biological control agent for phytoplankton. Silver carp have been studied as a potential tool for controlling excess nutrients in wastewater ponds, with mixed results.

Native Range and Potential Range in the United States

In Asia (China and Eastern Siberia), silver carp are native from about 54 [deg]N southward to 21 [deg]N. Most of North America falls within these latitudes. This fact, along with establishment of this species in countries with climates as tropical as Vietnam, as cold and arid as Afghanistan and Pakistan, and as temperate as Kyrgyzstan and Latvia, leads to the conclusion that climate alone in the United States should not limit distribution of silver carp.

Silver carp are likely to become established in the Great Lakes, especially given their close proximity. There are 22 rivers flowing into Lakes Erie, Huron, Michigan, and Superior that are potential spawning sites for silver carp. The Genetic Algorithm for Rule-Set Prediction (GARP) niche modeling tool estimates that United States distribution of silver carp could highly likely include most of the Midwest and eastern U.S. waterways, including the Chesapeake Bay, and tributaries, and the Connecticut River system. Based on the GARP model, silver carp, if introduced, are likely to also establish in the Columbia River system in the Northwest and possibly in parts of the Colorado and Sacramento/San Joaquin systems.

Because food availability, predation, and competition are not known to limit populations of this species elsewhere, access to habitats required for successful reproduction (i.e., substantial lengths of flowing water) will play a large role in determining potential range of silver carp in American waters. Another factor that may limit the distribution of silver carp in the United States is the requirement to incubate eggs in waters with fairly high ionic concentrations.

Largescale Silver Carp

Biology and Natural History

The commonly named largescale silver carp (or southern silver carp, Vietnamese carp, or Harmandi silver carp) belongs to the family Cyprinidae, with the species name of *Hypophthalmichthys harmandi*.

The largescale silver carp is physically most similar to the silver carp, but does resemble bighead carp as well. The relatively larger scale size of the largescale silver carp is the most reliable characteristic to distinguish it from silver carp. The number of scales along the lateral line of the largescale silver carp range from 77 to 88 compared to the silver carp with 85 to 108. Scale rows above the lateral line in largescale silver carp range from 21 to 23 compared to 29 to 30 in the silver carp.

Because largescale silver carp remain deep in the water column during daylight hours and swim toward the surface at night to feed on plankton, they may be less prone to jumping than silver carp in response to sounds of boat engines during daytime.

Hybrids

Largescale silver carp are known to hybridize and to produce viable offspring with silver carp. In northern Vietnam, native largescale silver carp, introduced silver carp, and their hybrids are cultured together. Largescale silver carp grow faster than silver carp but hybrids do not grow as quickly as pure largescale silver carp. No additional information on polyculture of largescale silver carp with other fish species was found. Largescale and silver carp hybrids are tolerant of a temperate climate (ca. 42-46 [deg]N).

Habitat Use

Largescale silver carp prefer slow-moving, plankton-rich open waters. This species is a nocturnal feeder and remains in deeper waters during daylight hours. Largescale silver carp is most closely related to silver carp, with which it hybridizes, therefore its salinity tolerance is probably similar to that of silver carp, which is a freshwater species that can live in slightly brackish waters.

Reproduction and Growth

The reproductive capability is expected to be similar to that of silver carp, though largescale silver carp reach sexual maturity at a younger age than silver carp. Females reach maturity in 2 years and males in 1 year. Spawning typically occurs in rivers during rains or floods in May and June, although spawning may be postponed until mid-August. Because largescale silver carp and silver carp are closely related and hybridize, spawning requirements are likely similar.

The mean growth rate is greater for largescale silver carp than for silver carp. No information was found on longevity of largescale silver carp, but silver carp can live 15-20+ years suggesting the possibility of a similar longevity in the closely related largescale silver carp. Some adults may weigh 20-30 kg.

Diet and Feeding Habits

Largescale silver carp feed on phytoplankton and prefer slow-moving, plankton-rich open waters. This species is a nocturnal feeder and remains in deeper waters during daylight hours. Because this species is most closely related to silver carp, their food and feeding habits are likely similar.

Uses

There is no indication that the largescale silver carp have been imported into or introduced into the open waters of United States. Largescale silver carp are considered the most important species for culture in Vietnam; the rapid growth and high fat content of this fish has made it an economically important species for food. Because this species is most closely related to silver carp, its potential effectiveness in controlling algae and its effect on excess nutrients in closed systems is possibly similar to that of silver carp.

Native Range and Potential Range in the United States

Largescale silver carp are native to fresh waters of northern Hainan Island, China, and the Red (Hong Ha) River of northern Vietnam. The native range of largescale silver carp is subtropical to tropical (21-22 [deg]N), making it the southernmost fish of the genus. The species does not occur naturally on the Chinese mainland.

Within its native range, largescale silver carp occur in subtropical to tropical climates. Therefore, should pure stock be introduced to U.S. waters, its potential range would likely be limited to subtropical waters such as those present in southern Florida, southern Texas, and Hawaii. Lack of access to suitable rivers for spawning in these areas may preclude successful spawning. Hybrids of largescale silver and silver carps, however, would be expected to tolerate temperate waters as they do in Kazakhstan at about 42-46 [deg]N.

Factors That Contribute to Injuriousness for Silver Carp

Introduction and Spread

The major pathway for introduction of silver carp in the United States was importation for biological control of plankton in culture ponds and sewage lagoons. The pathway that led to the presence of this species in open waters of the United States was probably escape from these facilities. Subsequent escapes and the mixture of silver carp with other species that were stocked may have contributed to the expansion of the species' range.

Silver carp are difficult to handle and transport because of their propensity to jump and avoid being taken by seines. These attributes have resulted in little silver carp culture in the United States since 1985. Silver carp are not being cultured commercially at this time; however, should culture of silver carp resume, a potential pathway for introduction would be escape or release from a facility or during the transport and sale of live fish in retail markets.

Other more likely pathways that may aid the spread of existing populations of silver carp include connected waterways, contamination of pond-grown baitfishes with silver carp, ballast water release, release or escape from livehaulers that support commercial fisheries,

or spread by commercial fishers themselves.

Wild silver carp are at risk of being spread when juveniles are collected by cast net for use as live baitfish. Silver carp juveniles are very similar in appearance to shad and anglers sometimes catch young silver carp and use them as live bait. Release of live bait has been identified as a source for more than 100 introductions of fishes beyond their natural range in the United States. Although adult and market-sized silver carp are fragile and do not survive collection and transport well, fingerling silver carp are less susceptible to mortality due to handling stress.

Other potential pathways for further introductions of silver carp into the wild involve those associated with the sale of the species in live food fish markets. Silver carp, caught as bycatch, may be sold as fillets or to live fish markets. Another potential pathway is the intentional release of silver carp through prayer release (the ceremonial release of a fish in honor of the one that will be eaten).

Silver carp have survived, become established in river systems, and have been reproducing in natural waters of the United States since at least 1995. Because silver carp can occupy lakes, there is serious concern that this species will further expand its range in the United States beyond riverine environments and into lake environments including the Great Lakes. In its native range, juveniles and adults are found in lakes and reservoirs. Silver carp may be capable of establishing reproducing populations in other major river systems, such as the Potomac/Chesapeake, Columbia, and Sacramento/San Joaquin Delta.

Hybrids

Hybridization of silver carp with native fishes is not possible, but hybridization has occurred between silver carp and bighead carp (*H. nobilis*), a nonnative species also present in the Mississippi River basin, and between silver carp and largescale silver carp (*H. harmandi*). Hybridization may also be possible with grass carp.

Potential Effects on Native Species

Competition for food and habitat with other planktivorous fishes and with post-larvae and early juveniles of most native fishes is likely high. Since nearly all fishes are planktivorous as larvae and juveniles, it is highly likely that silver carp will adversely affect most native fishes in the Mississippi River and also the Great Lakes basins, if established. Silver carp will most likely affect native adults in the Mississippi River Basin, such as paddlefish (*Polyodon spathula*), bigmouth buffalo (*Ictiobus cyprinellus*), gizzard shad (*Dorosoma cepedianum*), the regionally abundant emerald shiner (*Notropis atherinoides*), and threadfin shad (*Dorosoma petenens*), particularly in waters where food may become limited.

Paddlefish, native to the Mississippi River Basin and Gulf of Mexico river drainages from east Texas to Alabama, is a large river fish that has declined in abundance in recent years because of overharvest and habitat alteration. Like the silver carp, paddlefish use plankton as its primary food source, so silver carp or hybrids would directly compete with paddlefish for food throughout most of the paddlefish's range. Other fish, such as the buffalos or shads, use both plankton and aquatic invertebrates as food. While these fishes are currently more common than paddlefish, they may be at risk if silver

carp or silver x largescale silver carp hybrids or silver x bighead hybrids are able to establish and reduce plankton. Gizzard shad are a primary forage base for predacious fishes and important to the ecology of Midwestern rivers; thus, the potential competition with silver carp in these waters is cause for concern.

If silver carp negatively affect important planktivorous forage fishes such as the gizzard shad and emerald shiner, fishes and birds that prey on these species would likely also be negatively affected. Adult silver carp are too large to be preyed on by almost any native predator. Young silver carp have likely been incorporated into the diets of piscivorous birds and fishes to some degree, but the extent of this predation is not known. Ecosystem balance is likely to be modified if silver carp populations become large enough to dominate other planktivorous fish species. Silver carp will likely have major effects on nutrient cycling and may have adverse effects on primary productivity, which could alter food webs and ultimately alter nutrient and energy cycling in aquatic communities. The most likely negative effect would be an alteration of fish community structure through competition for food. Fishes and mussels that are determined to be candidates for listing under the Endangered Species Act would be at risk.

Habitat Degradation

There is low risk of silver carp causing direct habitat degradation and/or destruction, although the presence of silver carp is sometimes associated with decreased water clarity, which may also impact benthic chemistry and community structure. The effect of these fishes on nutrients, sediment re-suspension (which can stimulate plankton growth), and decreasing dissolved oxygen varies. Excrement from silver carp (which can equal their body weight in 10 days) has organically enriched lake bottoms and altered the benthic macroinvertebrate community structure. Once established, these fish are likely to cause shifts in the food web and compete with other zooplanktivorous fishes and fish larvae for food. Changes in the community structure towards smaller size plankton may have negative effects on fishes native to the United States that subsist on larger zooplankton.

Potential Pathogens

Many species of parasites and bacterial diseases occur in silver carp. The only viral disease agent of silver carp found in the literature is Rhabdovirus carpio, the causative agent for spring viraemia of carp (SVC), a systemic, acute, and highly contagious infection commonly occurring in the spring when water temperatures are below 18 [deg]C. Silver carp are susceptible to many diseases caused by parasitic protozoans and trematodes and several crustaceans have also been reported from silver carp.

Although there have been studies of disease-causing agents of silver carp, none have dealt with transfer of these pathogens to native fishes of the United States. Two parasites are a potential threat to native North American fishes, including cyprinids: Gill-damaging *Lernaea cyprinacea*, known as anchorworm (this parasite is also known to affect salmonids and eels), and *Bothriocephalus acheilognathi*, known as Asian carp tapeworm. The Asian carp tapeworm has infected native fishes of concern in five States: Arizona, Colorado, Nevada, New Mexico, and

Utah. Silver carp are hosts of this parasite, but suffer minimal adverse effects from it. As hosts of this tapeworm, silver carp have the potential to spread it to native fishes beyond the five states listed above. This is a parasite that erodes mucus membranes and intestinal tissues, often leading to death of the host.

Some disease-causing agents harbored by silver carp pose health risks to humans. The psychotropic pathogen *Listeria monocytogenes* has been found in market and fish farm samples of silver carp. *Clostridium botulinum* was found in 1.1% of fresh and smoked samples of silver carp from the Mazandaran Province in Iran. The toxigenic fungi *Aspergillus flavus*, *Alternaria*, *Penicillium*, and *Fusarium* were found from silver carp and from pond water in which they were raised at a fish farm in northern Iran. In addition, live *Salmonella* spp. can be found in silver carp for at least 14 days after transfer to clean water and silver carp, therefore, should be considered as a potential carrier for *Salmonella* (*S. typhimurium*).

Potential Impacts to Threatened and Endangered Wildlife

Adverse effects of silver carp on selected threatened and endangered freshwater mussels and fishes is likely to be moderate to high. There are currently 116 fishes and 70 mussels on the Federal List of Endangered and Threatened Wildlife. Based on habitat requirements, it appears that 40 fishes and 25 mussels currently on the list would likely be impacted by the introduction and establishment of silver carp. Habitat requirements, springs and small streams, of the remaining listed fishes and mussels would probably preclude any detectable effects as it is unlikely that silver carp could survive in such small bodies of water.

Adverse effects of established populations of silver carp on endangered and threatened fishes and mussels would vary between the two groups. Adverse effects to fishes would most likely be through direct competition for food resources, particularly phytoplankton and, to a lesser extent, zooplankton, in the water column during the larval stage. Potential for direct predation and injury of drifting fertilized eggs and larvae of native fishes also exists. Mussels are also filter feeders but live partly or totally buried in the substrate. Their association with the benthic environment means that they would be less likely to be affected by filter-feeding silver carp. Nevertheless, changes in the fish community structure caused by silver carp are likely to have adverse effects on abundance and availability of host fishes required for mussel reproduction. Nutrient levels are a concern because there is evidence of overloading of nutrients in waters where silver carp have been introduced. Silver carp may consume too much of the food in the water and compete with native species for food. Excrement from silver carp has been found to increase levels of certain nutrients, some which cannot be consumed by other animals in the digested form or may be harmful, which may lead to a net decrease in food resources available.

The likelihood that silver carp would have adverse effects on designated critical habitats of threatened and endangered species is significant. There are currently 60 species of fishes and 18 mussels with designated critical habitat. Of the fishes and mussels with critical habitat, at least 26 inhabit lakes or reaches of streams large enough to support silver carp.

In some habitats, silver carp can develop extremely large

populations that would likely further imperil native fishes not currently on the Federal List of Endangered and Threatened Wildlife. Large populations of silver carp are likely to alter the native fish community structure, resulting in decline of native mussels since many rely on native host fishes for reproduction. The fact that silver carp can become extremely abundant and reach a very large size (> 1 m in length) in rivers, lakes, and reservoirs increases the probability of a negative impact on aquatic ecosystems they invade.

Potential Control

Due to the extensive established range of silver carp in the Mississippi River Basin, conventional control methods are not feasible to reduce established populations. The damage to ancillary fisheries resources through control measures would be substantial. Netting and electrofishing may be effective in reducing populations, but many non-target fish species would also be killed where such control measures are used. Selective removal of silver carp is possible given their location in the water column, but water trawling could also remove other non-target fish such as paddlefish.

Use of chemical treatments, such as rotenone, would be expensive, only locally effective, and would negatively affect all fishes and invertebrates, not just the target carp. Chemical treatment of the Mississippi River and other large rivers in the United States to control silver carp is not feasible, either logistically or economically, and would have a low likelihood of success. Even most nonlethal methods to prevent the spread of silver carp, such as electrical barriers or acoustic, physical, or bubble barriers, would negatively affect migratory native fishes. This effect might be minimized, if somewhat species-specific sonic barriers were developed. Treatment of ballast water in vessels moving from waters containing reproductive populations of silver carp to waters devoid of these fishes may become necessary. At present, there is no method known to substantially reduce established populations of silver carp. On the basis of presently available technology, eradication is not possible.

Impacts to Humans

Silver carp in the United States cause substantial impacts to the health and welfare of human beings that use waterways infested with silver carp. There are numerous reports of injuries to human beings and damage to boats and boating equipment because of the jumping habits of silver carp in the vicinity of moving motorized watercraft. Some reported injuries include cuts from fins, black eyes, broken bones, back injuries, and concussions. Silver carp also cause property damage including broken radios, depth finders, fishing equipment, and antennae. Some vessels have been fitted with a Plexiglas pilot's cab as protection against jumping silver carp.

Factors That Reduce or Remove Injuriousness for Silver Carp

Control

The large and growing range of silver carp in U.S. waterways makes chemical control of established populations highly unlikely, both physically and fiscally. Some control might be possible with massive

fishing efforts. Justifying the expense of such efforts would require a large commercial demand, which does not currently exist, nor is likely given the jumping behavior of silver carp which makes fishing difficult.

The ability to control spread of established populations depends on their access to open waterways and riverine habitat to spawn. Barriers may help control the spread of silver carp from the Mississippi River basin into the Great Lakes or other waterbodies. However, there are still several pathways by which silver carp from established populations in the Mississippi River Basin might be moved to new waterbodies, such as the Potomac River or Columbia River, and have the potential to become established.

Recovery of Disturbed Sites

Because the ability to eradicate this species is low, there is little likelihood for rehabilitation or recovery of ecosystems disturbed by this species. Additionally infested waterways allow connections to unpopulated sites. Utilizing sterile silver carp would do little to reduce or remove injuriousness as the present range of establishment in the Mississippi River Basin is too extensive for this option to reduce current silver carp populations in this area. The use of daughterless fish technology (introducing sterile males to produce unviable eggs) may reduce populations, but this would take many years before it would reduce numbers of fish where they currently exist. Research is being conducted on the use of pheromones to control carp, but it is years from demonstrating effectiveness in natural waters and mass production. These technologies might be useful to prevent establishment of silver carp in new areas.

Potential Pathogens

The potential for silver carp to infect native fishes with pathogens is largely unknown. Should such transfers prove viable, the ability and effectiveness to control these transfers to native fishes would be low. The Asian carp tapeworm, for which silver carp is a known host, has demonstrated potential to jump to native species of several orders in other nations and within U.S. waters.

Potential Ecological Benefits for Introduction

The ability of silver carp to effectively filter particles and reliance on phytoplankton for much of its diet led to research into their effectiveness as a biological control agent for phytoplankton in wastewater systems and other ponds. There is conflicting data concerning the benefit of using silver carp to control excess nutrients. Regardless of their effect on increasing or decreasing phytoplankton and zooplankton abundance, studies have consistently shown that filter feeding by silver carp shifts the species composition of these communities to smaller species. Silver carps' effectiveness has also been shown to be greatly influenced by the design of the facility.

Conclusion

Because silver carp are likely to spread from their current

established range to new waterbodies in the United States; are likely to compete with native species for food and habitat; are likely to have negative impacts on humans; are known to hybridize with bighead carp, a nonnative species also established in the United States; and because it would be difficult to eradicate, reduce large populations, or recover ecosystems disturbed by the species, the Service finds silver carp to be injurious to the interests of human beings and the wildlife and wildlife resources of the United States.

Factors That Contribute to Injuriousness for Largescale Silver Carp

Potential Introduction and Spread

To our knowledge, the largescale silver carp has not been imported into the United States. Its growth rate is greater than that of silver carp, and the species reaches sexual maturity sooner than silver carp. In culture situations, introduced silver carp hybridized with largescale silver carp. The hybrids did not grow as quickly as largescale silver carp but exceeded the growth rate of silver carp. Largescale silver carp x silver carp hybrids were introduced in Kazakhstan where they became established. The climate of Kazakhstan is temperate; thus, largescale silver carp x silver carp hybrids are more cold-tolerant than pure largescale silver carp. The faster growth rate of these hybrids than pure silver carp and the increased palatability of largescale silver carp compared to silver carp may conceivably stimulate interest in culturing either the hybrids or pure largescale silver carp in the United States. Because hybrids can tolerate temperate climates, they have the potential to be cultured in many southern States. Culture of pure largescale silver carp would probably require subtropical/tropical conditions.

Escape from containment, as has happened with silver carp, would provide a pathway for release of largescale silver carp into natural waters. Should this fish or its hybrids be released into natural waters, connected waterways would become a secondary pathway for spread. Because of the morphological similarity between this species and silver carp, stock contamination of silver carp by largescale silver carp is possible if imported from regions with populations of *H. harmandi*. Another possible introduction pathway, should largescale silver carp or their hybrids be imported for culture, would be sale of live individuals in food fish markets.

Likelihood of spread of largescale silver carp, should they be introduced, would be high in subtropical/tropical waters of the United States, but only where river flows are sufficient to support spawning. Hybrid largescale silver carp x silver carp, however, would have high potential to live in much of the temperate United States. Because largescale silver carp can occupy reservoirs, they could also live in lakes. The same is likely true for hybrids. Young largescale silver carp or any hybrids captured by anglers for use as live bait would be a pathway that could lead to numerous future introductions of these species.

Hybrids

Hybridization with native fishes is not believed to be possible. Largescale silver carp can hybridize with silver carp and possibly bighead carp, both of which are present in U.S. waters. Hybrids of

largescale silver carp are known to have survived and became established in Kazakhstan at a latitude of approximately 45 [deg]N, a latitude that parallels the border between New York State and Ontario, Canada. Therefore, it can be assumed that these hybrids would be capable of surviving and probably establishing throughout much of the United States where suitable waters exist.

Potential Effects on Native Species

Largescale silver carp consume primarily planktonic food sources. It is unknown if largescale silver carp feed more heavily on phytoplankton than zooplankton, but their hybrids with silver carp would likely show a preference for phytoplankton. Largescale silver carp and hybrids are highly likely to compete for food with other planktivorous native fishes and with post-larvae and early juveniles of most native fishes should they become established in the United States.

Fishes most likely to be affected are those species whose diet is predominantly plankton including paddlefish (*Polyodon spathula*), native to the Mississippi River Basin and Gulf of Mexico river drainages from east Texas to Alabama, buffalos (*Ictiobus* spp.), or shads (*Dorosoma* spp.). Given that these fish may already be competing with bighead and silver carps in some areas, the presence of largescale silver carp would increase food competition and increase the threat of negative impacts to native species.

Potential for direct predation and injury of drifting fertilized eggs and larvae of fishes exists. Mussels are also filter feeders but live partly or totally buried in the substrate; they would be less likely to be affected by filter-feeding largescale silver carp or their hybrids. Largescale silver carp feed in the water column at night. Nevertheless, changes in the fish community structure caused by largescale silver carp or hybrids would likely have adverse effects on abundance and availability of host fishes required for mussel reproduction.

There are other possible, but less likely, effects that will cascade through any aquatic ecosystem with an established population of largescale silver carp or their hybrids. Nutrient levels are a concern because there is evidence of overloading of nutrients in waters into which silver carp have been introduced, and the same may apply to largescale silver carp or their hybrids.

Habitat competition would likely be low unless populations become significantly large. The potential of largescale silver and any hybrids to cause habitat degradation and/or destruction is low as is possible predation on native wildlife.

Additional adverse impacts on native wildlife, wildlife resources, and ecosystem balance are likely few, except for fishes. Ecosystem balance would likely be modified if populations of largescale silver carp or their hybrids with silver carp become large enough to dominate planktivorous fish species.

Because largescale silver carp may survive and become established and compete with native fishes, there is no acceptable escape or release threshold for largescale silver carp or their hybrids.

Potential Pathogens

The potential for largescale silver carp to transfer pathogens is largely unknown. No detailed studies of disease-causing agents of

largescale silver carp have been found, but at least three trematode parasites (*Dactylogyrus harmandi*, *D. hypophthalmichthys*, *D. chentushenae*) are known to infect largescale silver carp. Bighead, silver, grass, and black carps are known to host the Asian carp tapeworm (*Bothriocephalus acheilognathi*), but it is unknown whether largescale silver carp host this species. Since largescale silver carp are very similar to silver carp, they likely can host the Asian carp tapeworm.

Potential Impacts to Threatened and Endangered Wildlife

Adverse effects of largescale silver carp on selected threatened and endangered freshwater mussels and fishes would be expected to be moderate to high. There are currently 116 fishes and 70 mussels on the Federal List of Endangered and Threatened Wildlife. Based on habitat requirements, it appears that 40 fishes and 25 mussels currently on the endangered or threatened species list would likely be impacted by the introduction and establishment of largescale silver carp. However, the habitat requirements, springs and small streams, of the remaining listed fishes and mussels would probably preclude any detectable effects as it is unlikely that largescale silver carp or their hybrids would survive in such small bodies of water.

It is highly likely that largescale silver carp and particularly their hybrids with silver carp would have adverse effects on designated critical habitats of threatened and endangered species. There are currently 60 species of fishes and 18 mussels with designated critical habitat. At least 26 fishes and mussels with critical habitat inhabit lakes or reaches of streams large enough to support hybrids of largescale silver carp and silver carp. Largescale silver carp and their hybrids have the potential to alter food webs and ultimately alter nutrient and energy cycling in aquatic communities. The most likely effect would be an alteration of fish community structure through competition for food. Fishes and mussels that are determined to be candidates for listing under the Endangered Species Act would likewise be at risk.

There is low likelihood that species may be placed in danger of extinction as a result of the introduction or establishment of largescale silver carp if only pure stock escaped and became established in subtropical/tropical waters in the United States. Yet, the potential exists for hybrids with silver carp to develop large populations that could further imperil native fishes not currently on the Federal List of Endangered and Threatened Wildlife. Large populations of hybrids with silver carp would likely alter native fish community structures, ultimately resulting in decline of native mussels since many rely on native host fishes for reproduction. The fact that hybrids have the potential to become abundant and reach a very large size, > 1 m in length, in rivers, lakes, and reservoirs, increases the probability of a negative impact on aquatic ecosystems should largescale silver carp be introduced and become established.

Potential Control

Due to the potential range of establishment of hybrid largescale silver carp x silver carp in the United States, conventional control methods would not be feasible. The damage to ancillary fisheries

resources through control measures would be substantial. Netting and electrofishing might be effective in reducing local populations of largescale silver carp, but they would also affect native fishes present in the area where such control measures are used. Similarly, use of chemical treatments would be expensive, only locally effective, and would negatively affect all fishes and invertebrates. Even most nonlethal methods to prevent the spread of largescale silver carp, such as electrical barriers or bubble curtains, would negatively affect migratory native fishes. At present, there is no method known to substantially reduce populations of established fishes in U.S. waterways. On the basis of presently available technology, eradication would not be possible.

Potential Impacts to Humans

The potential impact on the health and welfare of humans from largescale silver carp or any hybrids is unknown. If largescale silver x silver hybrids display the jumping behavior of pure silver carp, their potential to injure humans could be considerable. Impacts to agriculture, horticulture or forestry from largescale silver carp or hybrids are highly unlikely.

Factors That Reduce or Remove Injuriousness for Largescale Silver Carp

Detection and Response

If largescale silver carp were introduced into U.S. waters, it is unlikely that the introduction would be discovered until the numbers were high enough to impact wildlife and wildlife resources. Widespread surveys of waterways are not conducted to establish species' presence lists. Delay in discovery would limit the ability and effectiveness to rapidly respond to the introduction and prevent establishment. It is unlikely that hybrid largescale silver x silver carp could be eradicated from U.S. waterways, should they be introduced, unless they are found in unconnected waterbodies.

Control

If hybrid largescale silver x silver carp were to escape and become established in natural waters, management of established populations would be nearly impossible both physically and fiscally. Some control might be possible with massive fishing efforts using nets, but this would unlikely stem range expansion. There would have to be substantial commercial demand to justify the expense of such efforts.

Chemicals or selective removal may be used to manage populations in localized areas. However, selective removal of largescale silver carp would be difficult because they remain in deeper waters during daylight hours when such removal efforts would probably occur. If largescale hybrids lack this behavior, then selective removal may be feasible in specific situations. Pheromones may be a viable option to limit spread; this possibility is under investigation for silver carp, and may have applicability to largescale silver carp and any hybrids. However, research into this control method is in early stages.

It would be difficult to control the spread of largescale silver carp or any hybrids to new locations except, perhaps, by use of electric, acoustic, physical and other types of barriers. At present,

there is no method known to substantially reduce populations of introduced fishes in U.S. waterways. On the basis of presently available technology, eradication would not be possible.

Although there is no evidence that this species has been introduced or targeted for introduction into the United States, its affinities with silver carp indicate that should it or its hybrids with silver carp be introduced, abilities to eradicate, manage or control spread to new locations would likely be low. Therefore, rehabilitation or recovery of ecosystems disturbed by this species or its hybrids is unlikely. Introduction of largescale silver carp or its hybrids has no known potential ecological benefits.

Because no evidence exists that largescale silver carp have been imported or released into U.S. waters, triploidy or induced sterility could potentially reduce or eliminate injuriousness. Nevertheless, these processes are likely to be costly, time-consuming, and not 100% effective. Should this species be imported, it is likely that it would be placed in culture with other Asian carps including silver carp, a species with which the largescale silver carp can hybridize. Although the largescale silver carp is not known to hybridize with bighead carp, it is feasible because hybrids between silver and bighead carps are known.

Recovery of Disturbed Sites

Although there is no evidence that this species has been introduced or targeted for introduction into the U.S., its similarities with silver carp indicate that should it or its hybrids with silver carp be introduced, abilities to eradicate, manage or control spread to new locations would likely be low. Therefore, there would be little likelihood for rehabilitation or recovery of ecosystems disturbed by this species or its hybrids.

Potential Pathogens

The potential for largescale silver carp or largescale silver x silver carp hybrids to infect native fishes with pathogens is largely unknown. Should such transfers prove viable, ability and effectiveness to control the spread to native fishes would be low.

Potential Ecological Benefits for Introduction

There are no potential ecological benefits for introduction of largescale silver carp or its hybrids.

Conclusion

Because largescale silver carp are likely to escape or be released into the wild if imported to the United States; are likely to survive, become established and spread if escaped or released; are likely to compete with native species for food and habitat; have been shown to hybridize with silver carp, a nonnative species already established in the United States; hybrids with silver carp may display jumping behavior that could injure humans; and because it would be difficult to prevent, eradicate, reduce large populations, control spread to new locations or recover ecosystems disturbed by the species, the Service finds largescale silver carp to be injurious to the interests of human

beings and the wildlife and wildlife resources of the United States.

Required Determinations

Paperwork Reduction Act (44 U.S.C. 3501 et seq.)

This rule contains information collection activity for special use permits. The Fish and Wildlife Service has approval from the Office of Management and Budget (OMB) to collect information under OMB control number 1018-0093. This approval expires June 30, 2007. The Service may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Regulatory Planning and Review

(a) In accordance with the criteria in Executive Order 12866, OMB has designated this rule as a significant regulatory action.

This rule would not have an annual economic effect of \$100 million or more or adversely affect an economic sector, productivity, jobs, the environment, or other units of government.

Costs Incurred

Silver Carp

We expect this proposed rule to have minimal costs. Silver carp are not cultured in the United States, nor do we believe that they are imported or exported. Currently, there are some commercial fisheries for silver carp in the Mississippi, Missouri, and Illinois rivers. Usually, commercial fishermen are catching silver carp as bycatch, which can account for up to 50 percent of the catch. Silver carp are not favorable because of their jumping habits and because they are less desirable by the consumer. In Missouri, many of the fishermen do not primarily target Asian carp (bighead and silver carp) because the price received is low (\$0.10-\$0.15 per pound). Instead, they fish for bighead and silver carp when other species or opportunities are unavailable. Many fishermen do not distinguish between bighead carp and silver carp.

Data for the silver carp fishery is limited. While Table 1 shows commercial fishery landings and value in Iowa and Illinois, we recognize that there may be landings in other States as well. Compared to the total commercial harvest and value, Asian carp represented 11 percent of landings and 6 percent of value in 2003. Because Illinois does not distinguish between bighead carp and silver carp in its annual report, we are unable to determine the magnitude of silver carp landings for the entire area. For Iowa, silver carp represented less than 1 percent of total landings.

Table 1.--2003 Commercial Fishery Landings and Value in Iowa and Illinois

	Illinois\1\	Iowa \2\ \3\	Total
Total Commercial Harvest (lbs).....	6,385,473	2,242,997	8,628,470
Asian Carp*.....	900,497	15,774	916,271
Silver Carp.....	3,828	3,828	
Total Commercial Value (\$).....	\$1,334,467	\$496,765	\$1,831,232
Asian Carp*.....	\$99,055	\$1,735	\$100,790
Silver Carp.....	\$421	\$421	

*Asian carp includes bighead carp and silver carp. The value for Asian carp and silver carp in Iowa is based on

the average \$0.11/lb received, which is the same as Illinois.

\1\ Illinois Department of Natural Resources. 2005. 2003 Commercial Catch Report. Brighton, Illinois.

\2\ Personal communication, Gene Jones, Iowa Department of Natural Resources.

\3\ Iowa Department of Natural Resources. 2003. Fisheries Management Section 2003 Completion Reports.

Des

Moines, Iowa.

The majority of the silver carp catch is sold as round weight. In Illinois, fishermen can sell silver carp as long as they are not transported live once the fish are taken off the water. No impacts are expected to this market because silver carp are not delivered live to the processor.

The market for live silver carp is unknown. Two live silver carp have been seen for sale in Toronto markets; it is unknown if live silver carp are being sold in United States markets. It is possible that silver carp are inadvertently shipped along with live bighead carp. However, most live haulers will not haul live silver carp because the fishes do not transport well. Furthermore, the consumer prefers bighead carp to silver carp. Because only sales of live silver carp would be regulated by this proposed rulemaking, we do not expect any impacts to commercial fishermen unless they are transporting live silver carp across State lines for processing. While the exact impact is unknown, we expect it to be minimal.

Largescale Silver Carp

There is no known use for largescale silver carp in the United States or import/export of the species into or from the United States. We do not know of any future plans to use largescale silver carp in the United States. Therefore, we do not expect the proposed rule to add largescale silver carp to the list of injurious wildlife to have any costs.

Benefits Accrued

Silver Carp

Within several waters of the Midwest, silver carp comprise a large percentage of the commercial catch as bycatch (non-target species). This may be negatively impacting revenue for commercial fishermen because silver carp are not as valuable as the native species that are targeted. It is possible that silver carp populations would not become established in new watersheds (Columbia Basin, Chesapeake Basin, and Sacramento-San Joaquin Delta) with similar attributes as the Mississippi River Basin as a result of this rulemaking. Silver carp are likely to compete with native fish for food, causing declines in native fishes in the United States, particularly those that rely heavily on plankton as a food resource.

With this proposed rule, we expect to delay and greatly decrease the risk of the establishment of silver carp populations in other U.S. watersheds. Thus, this proposed rule would protect native fish and the recreational and commercial fisheries associated with native fish. In terms of recreational fisheries, benefits would accrue due to (1) consumer surplus generated from fishing native fish and (2) fishing-

related expenditures such as food, lodging, and equipment. In terms of commercial fisheries, benefits would accrue due to the ex-vessel revenue from fishing native fish which are more valuable than silver carp. The timeline for when these benefits would accrue depends on the potential spread and impacts of silver carp. The extent of benefits to recreational and commercial fisheries is also unknown.

Largescale Silver Carp

There have been no reports that largescale silver carp are in the United States. However, native fish populations could decline if largescale silver carp were to establish populations in the United States. With this proposed rule, we expect to greatly reduce the risk of the introduction and establishment of largescale silver carp (or any hybrids) in U.S. watersheds. Thus, this proposed rule protects native fish and the recreational and commercial fisheries associated with native fish. In terms of recreational fisheries, benefits would accrue due to the continued (1) consumer surplus generated from fishing native fish and (2) fishing-related expenditures such as food, lodging, and equipment. In terms of commercial fisheries, benefits would accrue due to the continued ex-vessel revenue from fishing native fish. The extent of benefits to recreational and commercial fisheries is also unknown because it depends on the introduction and subsequent establishment of largescale silver carp populations in the United States.

(b) This proposed rule will not create inconsistencies with other Federal agencies' actions. This rule pertains only to regulations promulgated by the U.S. Fish and Wildlife Service under the Lacey Act. No other agencies are involved in these regulations.

(c) This proposed rule would not materially affect entitlements, grants, user fees, loan programs, or the rights and obligations of their recipients. This proposed rule does not affect entitlement programs. This rule is aimed at regulating the importation and movement of nonindigenous species that have the potential to cause significant economic and other impacts on natural resources that are the trust responsibility of the Federal Government.

(d) OMB has determined that this proposed rule raises novel legal or policy issues.

Regulatory Flexibility Act

Under the Regulatory Flexibility Act (as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever a Federal agency publishes a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions) (5 U.S.C. 601 et seq.). However, no regulatory flexibility analysis is required if the head of an agency certifies that the rule would not have a significant economic impact on a substantial number of small entities. Thus, for a regulatory flexibility analysis to be required, impacts must exceed a threshold for "significant impact" and a threshold for a "substantial number of small entities." See 5 U.S.C. 605(b). SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a rule

would not have a significant economic impact on a substantial number of small entities.

This proposed rulemaking may impact a small number of fishermen selling live silver carp. The number of fishermen targeting silver carp is unknown. Because the market for live silver market is also unknown, we are unable to estimate the degree of impact of this rulemaking. We expect this proposed rulemaking to have a minimal effect on commercial fishermen selling live silver carp because many live haulers do not transport live silver carp. We do not expect this rulemaking to affect aquaculture because silver carp, largescale silver carp or any hybrids are not being cultured in the United States at this time.

Many small businesses within the retail trade industry (such as hotels, gas stations, taxidermy shops, bait and tackle shops, etc.) may benefit from continued recreational fishing without impacts from silver carp, largescale silver carp, or any hybrids. Furthermore, small businesses associated with commercial fishing (fishermen, wholesalers, and retailers) would also benefit from continued commercial fishing without impacts from silver carp, largescale silver carp, or any hybrids. We do not know the extent to which these small businesses would continue to benefit. However, we expect this benefit to be distributed across various watersheds, and so we do not expect that the rule will have a significant economic effect (benefit) on a substantial number of small entities in any region or nationally.

Therefore, we certify that this rule would not have a significant economic effect on a substantial number of small entities as defined under the Regulatory Flexibility Act (5 U.S.C. 601 et seq.). An initial/final Regulatory Flexibility Analysis is not required. Accordingly, a Small Entity Compliance Guide is not required. No individual small industry within the United States will be significantly affected if live silver carp or largescale silver carp importation and interstate transportation are prohibited.

Small Business Regulatory Enforcement Fairness Act

The rule is not a major rule under U.S.C. 804(2), the Small Business Regulatory Enforcement Fairness Act. This rule:

(a) Does not have an annual effect on the economy of \$100 million or more. Silver carp is in limited commercial trade in the United States and primarily as fillets; the largescale silver carp is not known to be imported or present in the United States. Silver carp are likely to devastate many native fishery resources if it continues to spread in the United States. The largescale silver carp could devastate many native fishery resources if it is introduced to U.S. waterways. This rulemaking will protect the environment from the introduction and spread of non-native species and will indirectly work to sustain the economic benefits enjoyed by numerous small establishments connected with recreational and commercial fishing.

(b) Will not cause a major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions.

(c) Does not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises.

Unfunded Mandates Reform Act

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.), this rule does not impose an unfunded mandate on State, local, or tribal governments or the private sector of more than \$100 million per year. The rule would not prohibit intrastate transport or any use of silver carp or largescale silver carp within State boundaries. Any regulations adhering to the use of silver carp or largescale silver carp within individual States will be the responsibility of each State. The rule does not have a significant or unique effect on State, local, or tribal governments or the private sector. A statement containing the information required by the Unfunded Mandates Reform Act is not required.

Takings

In accordance with Executive Order 12630, the rule does not have significant takings implications. A takings implication assessment is not required. This rule would not impose significant requirements or limitations on private property use.

Federalism

In accordance with Executive Order 13132, the rule does not have significant Federalism effects. A Federalism assessment is not required. This rule would not have substantial direct effects on States, in the relationship between the Federal Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 13132, we determine that this rule does not have sufficient Federalism implications to warrant the preparation of a Federalism Assessment.

Civil Justice Reform

In accordance with Executive Order 12988, the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and meets the requirements of sections 3(a) and 3(b)(2) of the Executive Order. The rule has been reviewed to eliminate drafting errors and ambiguity, was written to minimize litigation, provides a clear legal standard for affected conduct rather than a general standard, and promotes simplification and burden reduction.

National Environmental Policy Act

We have reviewed this rule in accordance with the criteria of the National Environmental Policy Act and the Departmental Manual in 516 DM. This action is being taken to protect the natural resources of the United States. Draft environmental assessments have been prepared for each species and are available for review by written request (see ADDRESSES section) or at our Web page at <http://contaminants.fws.gov/Issues/InvasiveSpecies.cfm>.

Adding silver carp and largescale silver carp to the list of injurious wildlife is intended to prevent their further introduction and establishment into natural waters of the United States in order to protect native fishes, the survival and welfare of wildlife and wildlife resources and the health and welfare of humans. Not listing

silver carp as injurious may allow for an expansion of their use to States where they are not already found, thus increasing the risk of their escape and establishment in new areas due to accidental release and, perhaps, intentional release, which would likely threaten native fish, wildlife, and humans. Silver carp are established throughout much of the Mississippi River Basin. Releases of silver carp into natural waters of the United States are likely to occur again and the species is likely to become established in additional U.S. waterways, threatening native fish populations, wildlife, and wildlife resources dependent on phytoplankton, zooplankton, bacteria, and detritus, and impacting human health.

Largescale silver carp are not known to be in the United States, but if introduced to natural waters, they would likely impact the welfare and survival of native fish and wildlife, as well as the health and welfare of humans. In addition, largescale silver carp are visually similar to silver carp and can readily hybridize with silver carp, so they would be difficult to distinguish from silver carp.

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994, "Government-to-Government Relations with Native American Tribal Governments" (59 FR 22951), Executive Order 13175, and 512 DM 2, we have evaluated potential effects on Federally recognized Indian tribes and have determined that there are no potential effects. This rule involves the importation and interstate movement of all forms of live silver carp, largescale silver carp, gametes, eggs, and hybrids. We are unaware of trade in these species by Tribes.

Effects on Energy

On May 18, 2001, the President issued Executive Order 13211 on regulations that significantly affect energy supply, distribution, and use. Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. This rule is not expected to affect energy supplies, distribution, and use. Therefore, this action is not a significant energy action and no Statement of Energy Effects is required.

Clarity of the Rule

Executive Order 12866 requires each agency to write regulations that are easy to understand. We invite your comments on how to make this rule easier to understand including answers to questions such as the following: (1) Are the requirements in this rule clearly stated? (2) Does the rule contain technical language or jargon that interferes with the clarity? (3) Does the format of the rule (grouping and order of sections, use of headings, paragraphing, etc.) aid or reduce its clarity? (4) Is the description of the rule in the SUPPLEMENTARY INFORMATION section of the preamble helpful in understanding the rule? What else could we do to make the rule easier to understand?

Send a copy of any written comments about how we could make this rule easier to understand to: Office of Regulatory Affairs, Department of the Interior, Room 7229, 1849 C Street, NW., Washington, DC 20240. You may also e-mail comments to Exsec@ios.doi.gov.

References Cited

A complete list of all references used in this rulemaking is available upon request from the Branch of Invasive Species (see the FOR FURTHER INFORMATION CONTACT section).

Authority

The Service is issuing this proposed rule under the authority of the Lacey Act (18 U.S.C. 42).

List of Subjects in 50 CFR Part 16

Fish, Imports, Reporting and recordkeeping requirements, Transportation, Wildlife.

For the reasons discussed in the preamble, the U.S. Fish and Wildlife Service proposes to amend part 16, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as follows:

PART 16--[AMENDED]

1. The authority citation for part 16 continues to read as follows:

Authority: 18 U.S.C. 42.

2. Amend Sec. 16.13 as follows:

- a. By removing the word ``and" at the end of paragraph (a)(2)(iii);
- b. By removing the period at the end of paragraph (a)(2)(iv)(BB) and adding in its place ``; and"; and
- c. By adding a new paragraph (a)(2)(v) to read as set forth below.

Sec. 16.13 Importation of live or dead fish, mollusks, and crustaceans, or their eggs.

(a) * * *

(2) * * *

(v) Live fish, gametes, viable eggs, or hybrids of the species silver carp, *Hypophthalmichthys molitrix*, or largescale silver carp, *Hypophthalmichthys harmandi*.

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Dated: July 14, 2006.

Matt Hogan,
Acting Assistant Secretary for Fish and Wildlife and Parks.
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